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Tyler Building — First Floor
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RE: Commonwealth ex rel. State Corporation Commission, In re: Virginia Electric and Power Company's Integrated Resource Plan filing pursuant to Virginia Code § 56-597

Case No. PUR-2023-00066

Dear Mr. Logan,

Please find attached for filing in the above-captioned case a corrected copy of the Sierra Club's Comments on the Senior Hearing Examiner's Report, which were originally filed on December 29, 2023. Please do not hesitate to contact me if you have any questions regarding this filing.

Thank you,

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COMMONWEALTH OF VIRGINIA
STATE CORPORATION COMMISSION

COMMONWEALTH OF VIRGINIA, *ex rel.*

STATE CORPORATION COMMISSION **Case No. PUR-2023-00066**

In re: Virginia Electric and Power Company's Integrated Resource Plan filing pursuant to Virginia Code § 56-597 *et seq.*

SIERRA CLUB'S COMMENTS ON THE SENIOR HEARING EXAMINER'S REPORT

In accordance with Virginia Code § 12.1-31 and Rule 120 of the Commission's Rules of Practice and Procedure,[1] the Sierra Club submits the following comments on the December 8, 2023 Report of Senior Hearing Examiner A. Ann Berkebile. As detailed below, the Club largely supports the Senior Hearing Examiner's Report, and it echoes many of her recommendations. The Club disagrees, however, with several of the Commissioner's non-dispositive findings, and submits these comments to address those findings.

Prefatory Comment

After resolving the dispositive issue, the Hearing Examiner addresses a score of "associated issues" raised by respondents and Staff.[2] The Hearing Examiner ultimately concludes that none of those "alleged infirmities in the 2023 IRP identified by various case participants warrant a recommendation that the 2023 IRP is not reasonable and in the public interest."[3]

1 5 VAC § 5-20-120 C.

2 Hearing Examiner's Report at 132–160.

3 *Id.* at 1.

Given, however, that the Hearing Examiner registers concern more than a few of those issues, the Club does not read Report as an endorsement of Dominion's approach. With few exceptions, in fact, the Club agrees that "each of these issues—*standing alone*—would not warrant a finding that the 2023 IRP is not reasonable and in the public interest."[4] But the Club also agrees with the Hearing Examiner that the Commission can reject an IRP based on a "combination of deficiencies."[5] In this case, the Hearing Examiner concluded—rightly—that Dominion's inclusion of new carbon-emitting generation in its short-term action plan, without addressing the VCEA's presumption against such additions, was a dispositive flaw in the IRP.[6] At that point, any further weighing of issues would be academic.[7]

But as the Company recognizes, integrated planning "is an iterative process,"[8] and there is value to the parties in understanding the Commission's analysis of even non-dispositive issues—any one of which may be dispositive in a future case. The Code, in fact, contemplates that IRP cases will be more than a balls-and-strikes adjudication.[9] Under Virginia Code § 56-598 4, the Commission can require an IRP contain "additional information pertaining to how the electric utility intends to meet its obligation[s]" beyond those topics outlined by the General Assembly. In other words, when the Commission adjudicates an IRP case, it is not

4 *Id.* at 129 n.576 (emphasis added).

5 *Id.*

6 *Id.* at 131.

7 *See, e.g., Commonwealth v. White*, 293 Va. 411, 419 (2017) (explaining that judicial restraint favors a ruling "on the best and narrowest grounds available" rather than resolving a more "nuanced contest").

8 Transcript at 806:22–806:23 (Flowers Surrebuttal).

9 *Cf. Lomax v. Ortiz-Marquez*, 140 S. Ct. 1721, 1724 (2020) (characterizing judicial role as a "duty to call balls and strikes").

merely enforcing "laws supposed already to exist;"[10] it is also establishing and refining the standards applicable to future filings.[11]

Given the hybrid nature of IRP proceedings, the Hearing Examiner's approach properly balances "the doctrine of judicial restraint [to] decide cases on the best and narrowest grounds available"[12] with the regulatory value of "a guide, direction, or rule of action for determining future" cases.[13] If the Commission decides to adopt the Report in its entirety, the Club asks that it also acknowledge its ruling does not encompass the sort of cumulative-effects analysis that may be appropriate in the absence of a single, dispositive issue. In the case that the Commission does *not* find a single issue to be dispositive, however, the Club asks that it nonetheless find the IRP unreasonable and not in the public interest based on the cumulative effect of the flaws outlined in the Comments below.

Finding & Recommendation No. 1:
Presumption Against New Fossil-Fueled Generation

Given the 2023 IRPs focus upon the imminent addition of new natural gas CTs, and because the Company failed to provide more comprehensive information and/or analysis with the 2023 IRP concerning its ability to overcome §56-585.1 A 5 of the Code's presumption against new carbon-generating unit approvals, I

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10 *Cf. National Home Insurance Co. v. State Corporation Commission*, 838 F. Supp. 1104, 1116 (E.D. Va. 1993) ("In a judicial inquiry, the SCC 'investigates, declares and enforces liabilities as they stand on present or past facts and under laws supposed already to exist.'") (quoting *Prentis v. Atlantic Coast Line*, 211 U.S. 210, 225 (1908)).

11 *Alexandria Water v. Alexandria City Council*, 163 Va. 512, 536, 177 S.E. 454, 463 (1934) (holding that the Commission's establishment of rules "for future application is the exercise of a legislative power").

12 *Butcher v. Commonwealth*, 298 Va. 392, 396 (2020) (quoting *Commonwealth v. White*, 293 Va. 411, 419 (2017)).

13 *City of Norfolk v. Virginia Electric & Power Co.*, 197 Va. 505, 516 (1955).

find Dominion failed to establish the 2023 IRP is reasonable and in the public interest.

The Sierra Club supports this Finding and the associated Recommendation that the "2023 IRP is not reasonable and in the public interest."[14] Under the VCEA, Dominion cannot construct a new carbon-emitting generating unit unless the Commission makes three prerequisite findings: (1) that there is a material threat to the reliability or security of electric service; (2) that the utility has met the energy savings goals identified in § 56-596.2; and (3) that supply-side resources are more cost-effective than demand-side or energy storage resources.[15] Even though Dominion plans to file a Certificate for Public Convenience and Necessity for its 970-MW Chesterfield Combustion Turbine (CT) in 2024,[16] the Company provided no evidence or testimony to support its claims of an actual reliability threat or of the cost-effectiveness of a new CT relative to demand-side or generation alternatives.[17] Since the Company's 2023 IRP relied heavily upon new CTs and failed to provide any evidence to rebut the presumption in Virginia Code § 56-585.1 A 5 c, the Commission should reject the 2023 IRP as unreasonable and not in the public interest.

Finding & Recommendation Nos. 2 and 3:
Least-Cost VCEA-Compliant Plan

The Company's Alternative Plan A appears to reasonably comply with the Commission's directive in the 2020 IRP Order for Dominion to provide at least one least-cost plan meeting applicable carbon regulations and mandatory RPS Program requirements.

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14 Hearing Examiner's Report at 164.

15 Virginia Code § 56-585.1 A 5 c.

16 Hearing Examiner's Report at 131.

17 *See* Transcript at 807:18–808:2 (Flowers Cross).

The Company's provision in the 2023 IRP of Alternative Plans considering VCEA requirements, rather than a single least-cost VCEA-compliant plan, is adequate for purposes of a planning document.

Dominion's IRP must include a "least cost VCEA plan that would meet [both] applicable carbon regulations and the mandatory RPS Program requirements."[18] The Hearing Examiner's Report states that "Alternative Plan A would appear to comply with the Commission's directive for the provision of a least-cost compliant plan in the 2020 IRP Order, provided that the Commission does not consider "carbon regulations" as that term was used in the 2020 IRP Order, to include statutory requirements of the VCEA."[19] The Hearing Examiner appears to be assuming that the least cost plan does *not* need to include *all* of the statutory requirements of the VCEA—only the carbon regulations considered at the time of the 2020 IRP.

That reasoning, however, is inconsistent with the plain language of the 2020 IRP Final Order. Dominion was specifically required to include a "least cost VCEA plan" after multiple parties to the proceeding raised the concern that Dominion failed "to include a least cost VCEA compliant plan."[20] In addition, the language of the order requires this least cost VCEA plan to include all "*applicable* carbon regulations." Carbon regulations will change over time, but the provisions of the VCEA addressing carbon should, at a minimum, be included in this least cost plan: retiring fossil-fuel units by the end of 2045, not constructing new carbon-emitting resources without justification of a reliability threat or that it can meet the minimum 5% energy savings, and

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18 *Commonwealth ex rel. State Corporation Commission in re: Virginia Electric & Power Company's Integrated Resource Plan Filing Pursuant to Virginia Code § 56-597*, Case No. PUR-2020-00035, Final Order at 14 (February 1, 2021), available at http://tinyurl.com/mrskajry (2020 IRP Order).

19 Hearing Examiner's Report at 125 (emphasis added).

20 2020 IRP Order, *supra* note 18, at 13.

assuming that Virginia remains in RGGI. No single plan in the 2023 IRP accomplishes all of these requirements.

The Hearing Examiner proposes "simulating" a least-cost VCEA-compliant plan by combining elements of Plans B and D. The Company, however, should not shift the burden of building a single, legally sufficient plan onto the Commission or respondents.[21] Dominion's 2023 IRP, and the portfolios it developed, fail to contain a single least cost VCEA compliant plan, and the IRP should therefore be rejected for that reason alone.

Finding & Recommendation Nos. 5 & 7:
Modeling the Regional Greenhouse Gas Initiative

> *While it would have been more appropriate for the Company to model as a base assumption Virginia remaining in RGGI, given the 2023 IRP's filing date, Dominion appears to have provided the information contemplated by the 2022 RPS Order by modeling Virginia's continued participation in RGGI as a sensitivity.*
>
> *In future IRPs, Dominion should model Virginia's RGGI status at the time that the IRP is filed (or when its next RPS Development Plan is filed) and if, at that time, Virginia's RGGI status remains unresolved, should model Virginia's status both in and out of RGGI, ideally through its base case assumptions.*

The Sierra Club disagrees with the Hearing Examiner's conclusion—tepid though it is—that Dominion's modeling of RGGI "appears to have provided the information contemplated by the 2022 RPS Order."[22] Admittedly, the 2022 RPS Order on its face speaks only to Dominion's "next RPS plan filing."[23] But the Club agrees with the Hearing Examiner's apparent premise that

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21 *Id.* at 14.

22 Hearing Examiner's Report at 161.

23 *See Petition of Virginia Electric & Power Company for Approval of its 2022 RPS Development Plan etc.*, Case No. PUR-2022-00124, Final Order at 8 (April 14, 2023), available at https://tinyurl.com/24erw8xh (2022 RPS Order).

the directives regarding system-wide modeling apply with equal force in IRP proceedings.[24] The operative question, then, is whether Dominion's IRP includes "modeling results . . . that show the Commonwealth both in RGGI and out of RGGI."[25]

It does not. As the Commission emphasized in the 2020 IRP Order, the central modeling exercise in an IRP is the creation of an optimized plan—one that identifies the optimal resources to add or retire at the optimal time, based on economic, regulatory, and technological factors.[26] Accordingly, when the Commission ordered Dominion to "fully model the VCEA in future IRPs and updates,"[27] the Company made some attempt (albeit an incomplete one) to include the restraints imposed by law into its resource selection model and allow PLEXOS to optimize least-cost, VCEA-compliant plans.[28] Giving the 2022 RPS Order the same natural reading,[29] Dominion should have created at least one optimized build-plan for a scenario in which Virginia remains in RGGI and at least one optimized build-plan for a scenario in which it does not.

Instead, Dominion developed a handful of Alternative Plans, all designed around a non-RGGI-future. Then, for its sensitivity analysis, Dominion appears to have merely added to the NPV of each Alternative Plan the increased RGGI-related O&M costs from fossil plants that

24 Hearing Examiner's Report at 133 & n.595 (citing 2022 RPS Order).

25 *Id.* at 133.

26 2020 IRP Order at 14 (directing Dominion "not to force the model to select any specific resources nor exclude any reasonable resource" but to instead "allow the model to optimize the accompanying resource plan").

27 *Id.* at 8.

28 *See* Hearing Examiner's Report at 125.

29 *See Hill v. Commonwealth*, 301 Va. 222, 228 (2022) (explaining that a court's orders must be interpreted in a "common-sense manner").

PLEXOS had *already selected* in the non-RGGI scenario.[30] Thus, instead of providing Alternative Plans in which the model is allowed to select an optimal portfolio in light of the constraints imposed by RGGI, the sensitivity analysis only tells us the costs Dominion will incur if it commits to a build-plan optimized around a non-RGGI future, but nonetheless has to pay the full cost of RGGI compliance throughout the planning period.[31]

This is not to say that the sensitivity analysis is worthless. Like any good sensitivity analysis, Dominion's RGGI analysis *does* reveal "the extent to which the outcome is robust to a change in an estimated input used as part of the prediction and monetization process."[32] The fact that Dominion's analysis shows higher NPVs for each Alternative Plan tells us that the cost-effectiveness of those Plans is highly sensitive to whether Virginia remains in RGGI. More to the point, the analysis suggests that relying on a non-RGGI-optimized build plan is a risky strategy so long as RGGI compliance is a possibility. But the analysis certainly does *not* show that "it would be more expensive for customers if Virginia remains in RGGI," as Dominion claims.[33]

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30 The increased O&M costs include both the cost of RGGI allowances and any differences in ICF's "Base Case" and "Virginia in RGGI" commodity forecasts. *See* Exhibit No. 2 (IRP Report) at 62–63.

31 At one point, the IRP claims that "the Company re-optimized the build plans" for "all sensitivities" it performed. Exhibit No. 2 (IRP Report) at 34. Elsewhere, however, the Plan clarifies that the Company "[r]e-optimized the model" instead of "locking down the base case build plan," only for those "cost sensitivities presented in Figure 2.6.3." *Id.* at 76. The RGGI sensitivity is not included in that Figure; it appears instead in Figure 2.6.1. *Id.* at 35–36. Dominion later confirmed in discovery that it made no other "major refinements" to its modeling—including, presumably, any re-optimization under sensitivities *other* than those in Figure 2.6.3. *See* Exhibit No. 35 (Glattfelder Direct), Attachment MSG-1 at 2–3.

32 SUZANNE BONNER, SOCIAL COST BENEFIT ANALYSIS & ECONOMIC EVALUATION 231 (2022), available at https://tinyurl.com/3cskxsbc.

33 *Cf.* Exhibit No. 2 (IRP Report) at 34.

The Hearing Examiner appears to acknowledge that shortcoming in recommending that future IRPs "model Virginia's participation both in and out of RGGI—*ideally through its base case assumptions.*"[34] The Club supports that recommendation. Modeling a full RGGI scenario—as opposed to a mere sensitivity—will provide the Commission and stakeholders with actionable information in the form of a least cost-plan for providing reliable service under RGGI. Even if that is not what the Commission contemplated in its 2022 RPS Order, it is consistent with the statutory requirement that IRPs "systematically evaluate . . . [t]he most cost effective means of complying with [a] pending state . . . environmental regulation" of RGGI's magnitude.[35]

The Club similarly supports the Hearing Examiner's recommendation that the Company continue modeling RGGI so long as "Virginia's RGGI status remains unresolved."[36] As discussed above, Dominion's own sensitivity analysis shows the harm to ratepayers if Dominion proceeds with a non-RGGI-optimized plan but nonetheless has to comply with RGGI.[37] As long as Virginia's continued participation in RGGI remains a reasonable possibility, the Company, the Commission, and stakeholders should understand the risks associated with any short-term commitment of resources.[38]

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34 Hearing Examiner's Report at 133 (emphasis added).

35 *Cf.* Virginia Code § 56-599 B 9.

36 Hearing Examiner's Report at 161.

37 *See generally* Exhibit No. 2 (IRP Report) at 35 (showing increased NPV of between $1.6 and $1.9 billion for Plans A–E if Virginia remains in RGGI).

38 As for the Hearing Examiner's conclusion that any flaws in "Dominion's RGGI sensitivity analysis are immaterial to the overall determination of whether the 2023 IRP is reasonable and in the public interest," the Club agrees the flaws are not outcome-determinative given the other shortcomings in the IRP. It maintains, however, that flaws in the Company's modeling of RGGI may be determinative in a future case with a different legal or factual context.

Finding & Recommendation No. 13:
Renewable & Storage Build Limits

Dominion established a reasonable basis for the renewable and energy storage annual build limits utilized in the 2023 IRP "snapshot in time" analysis, particularly for the Planning Period directly at issue in the 2023 IRP.

Dominion made multiple claims regarding why it limited its renewable and energy storage annual build limits: prior experience with constructing the projects, limited experience in operating energy storage resources, lack of fully developed permitted projects.[39] The Company also identified construction constraint such as supply chain, labor shortage and PJM transmission queue difficulties, that would persist for fifteen years as a justification for its 900 MW/year solar build limit and 300 MW/year energy storage build limit.[40] Sierra Club agrees that there are "logical and rational limits to the quantity of resources a utility can bring online at one time, but placing an unjustified and low limit in the model" minimizes the usefulness of the modeling results.[41] In addition, there is no reason to believe, and no evidence to support, that construction constraints, such as PJM transmission queue issues, will persist for *fifteen years*. The Commission should require Dominion, in the 2024 IRP and all subsequent IRPs, to lift or ease the build limits it placed on solar and battery storage and justify the limit it chooses. In the alternative, Dominion should be required, in the 2024 IRP and all subsequent IRPs, to conduct a sensitivity analysis with higher build limits, which would signal to developers that customers will benefit from greater access to solar resources, which could result in a need for less fossil resources and lower cost to ratepayers.

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39 Exhibit No. 2 (IRP Report) at 66; Exhibit No. 24 (Glick Direct) Attachment DG-6

40 Exhibit No. 52 (Flowers Rebuttal) at 4:13–4:23; 5:1–5:5; Transcript at 814:25–815:8 (Flowers Cross)

41 Transcript at 366:15–366:19 (Glick Surrebuttal).

Finding & Recommendation No. 14
Assumptions Underlying Retirement Analysis

The assumptions utilized in the Company's retirement analysis were not unreasonable for the limited purpose of the 2023 IRP.

Dominion completed a ten-year cash flow analysis of its coal-fired, biomass-fired and large combine cycle facilities in addition to allowing PLEXOS to endogenously retire these same units under Alternative Plans A–C.[42] That retirement analysis suffers from the same flaws and criticisms as the PLEXOS modeling generally—including the solar build limits, the failure to model long-term energy storage, the unreasonable RGGI and REC price forecasts, the failure to account for statutorily-mandated investments in energy efficiency, and the VCEA mandate to retire all fossil fuel units by the end of 2045. The Hearing Examiner expressed concerns regarding RGGI and REC price forecasts as well as energy efficiency,[43] all of which undermine the reliability of the retirement analysis. For these reasons the Commission should find the retirement analysis unreasonable.

Moreover, Dominion's conclusion that maintaining operations at Clover and Mount Storm beyond 2045 emerges from an uncritical acceptance of the model optimization for Plans A–C. If Dominion had instead tested earlier retirement dates, as Sierra Club Witness Glick did in her modeling, the Company would have seen that the marginal difference between the cost of the two scenarios favors a decision to retire the plants and thereby reduce its exposure to the well-documented risks of relying on older, fossil-fueled resources.[44] To make matters worse, Dominion completely ignored the VCEA requirement to retire its fossil-fuel units by the end of

42 Exhibit No. 2 (IRP Report) at 81–84.

43 Hearing Examiner's Report at 161–63.

44 Exhibit No. 24 (Glick Direct) at 13, 20, 34.

2045. It simply "assumed" that the plants are needed for reliability purposes without any analysis at its back. The default modeling assumption, absent a "comprehensive assessment of system reliability needs [regarding] which carbon-emitting units should be retired and which ones may be needed to maintain system reliability" should be retirement by December 31, 2045.[45]

The results of the cash-flow analysis are clear: VCHEC continues to prove uneconomic, with negative NPVs ranging from $119 to $305 million.[46] As testified to by Sierra Club Witness Glick and Staff Witness Boehnlein, retiring a plant with a significant negative NPV will result in a positive savings to ratepayers.[47] Accordingly, Synapse's model chose to economically retire VCHEC prior to 2030 and replace it with alternative resources.[48] That accords with Staff's own fifteen-year cash flow analysis, which shows all units performing worse than the Company's Plan B low-capacity price sensitivity and Mount Storm and Clover also proving uneconomic over the next fifteen years.[49]

At times in this proceeding, the Company has asked the Commission to ignore the results of the ten-year analysis and look to the longer-term, 25-year analysis as justification for its continued reliance on fossil fuel resources, claiming that "all fossil generators" are NPV-positive over that 25-year period.[50] Elsewhere, the Company has emphasized the importance of the short-

45 Transcript at 302:17–302:20 (Abbott Surrebuttal).

46 Clover and Mount Storm also have negative cash flows under a low capacity price forecast. Exhibit No. 2 (IRP Report) at 83 (Figure 5.2.1.1).

47 Exhibit No. 37 (Boehnlein Direct) at 12:16–12:17; Transcript at 362:9–362:12 (Glick Surrebuttal).

48 Exhibit No. 24 (Glick Direct) at 20–21; Transcript at 362:12–362:15 (Glick Surrebuttal)

49 *Id.*

50 Exhibit No. 39 (Compton Rebuttal) at 23:10–23:11, 32:14.

term—sometimes five years, sometimes the fifteen-year planning period—since "the further out in the Company's 2023 Plan, the greater the uncertainty and the greater the potential for a change in the law or technology to shift the Company's path forward."[51] By declining to pass on resource decisions beyond the fifteen-year planning period, the Hearing Examiner appears to adopt the latter philosophy. If the Commission agrees, then it can similarly discount Dominion's prediction that Mount Storm and Clover will finally realize a return on continued investments several decades into the future.[52]

In any case, the Club ultimately agrees that the Commission's focus should be on the near term planning period. Things can change quickly, and as the Hearing Examiner's Report rightfully points out, "the large load growth projected . . . is driven, primarily, by expectations relating to data center customers in Dominion's commercial demand sector .... More specifically . . . the increased data enter demand Dominion projects in 2030 is driven by just five data center customers who make up approximately 80% of projected demand growth."[53] If any of those customers change their minds, or that development does not take place at the scale and magnitude predicted, then the needs of the system will change dramatically. Due to this heightened volatility, the Commission should focus its attention on the fifteen-year planning period, and over the next five to ten years VCHEC is unequivocally uneconomic, and should be retired and replaced with lower cost, clean resources. Ratepayers should not continue to be on

51 Exhibit No. 39 (Compton Rebuttal) at 14:14–14:19.

52 Hearing Examiner's Report at 142.

53 *Id.* at 136

the hook for a plant that has been consistently uneconomic for years, including in the 2020 IRP when it showed a negative ten-year NPV of approximately $400 million.[54]

Finding & Recommendation Nos. 32 & 33:
Accounting for the Social Cost of Carbon

The Company's decision not to include a social cost of carbon dispatch adder in its modeling assumptions was not unreasonable.

The Commission should direct Dominion to report the social cost of carbon associated with the NPVs of alternative plans presented in future IRPs.

The Club supports the Hearing Examiner's recommendation that Dominion "report the social cost of carbon associated with the NPVs of alternative plans presented in future IRPs." This common-sense requirement would bring IRP proceedings in line with RPS cases, in which the Commission has expressly "recogni[zed] that the social cost of carbon must be considered in the context of new generation resources."[55] As Sierra Club Witness Shobe explains, including the social cost of carbon in resource planning is "simply an extension of standard, textbook economics: in making decisions, we should take into account the full set of costs and benefits associated with each alternative."[56] In that respect, disclosing the social cost of carbon promotes the sort of "environmental responsibility" contemplated by the IRP statute.[57]

But more pragmatically, the Commission should require that Dominion report the social cost of carbon from each plan for the same reason it should require Dominion address the

54 *In re Virginia Electric & Power Company's Integrated Resource Plan Filing Pursuant to Virginia Code § 56-597*, Case No. PUR-2020-00035, Exhibit No. 58 (Norwood Direct) at SN-6.

55 Hearing Examiner's Report at 158 (citing 2022 RPS Order, *supra* note 23, at 10).

56 Exhibit No. 30 (Shobe Direct) at 21:10–21:12 (citing ANTHONY E. BOARDMAN ET AL., COST-BENEFIT ANALYSIS: CONCEPTS & PRACTICE 119–61 (5th ed. 2018)).

57 Virginia Code § 56-597 (defining an IRP as, among other things, a plan "to promote reasonable prices, reliable service, energy independence, and environmental responsibility").

VCEA's statutory presumption against new fossil-fueled resources: there is no good reason to exclude from the resource planning process a consideration that the General Assembly has expressly attached to the actions proposed in an IRP. Ignoring a statutory consideration of that kind turns the planning process into an abstract exercise, divorced from the legal framework that governs the ultimate approval of the actions proposed in the document. Given the unambiguous mandate to consider the social cost of carbon in CPCN proceedings,[58] the metric should be incorporated into the planning process as well.

Contrary to the Hearing Examiner, however, the Club believes a reasonable IRP should include at least one optimized resource plan in which the social cost of carbon acts as an effective shadow price on dispatch. As the Hearing Examiner notes, Dominion has included some form of social cost of carbon adder in prior model runs, but it now cites the Commission's 2022 RPS Order as the reason it discontinued that practice for the 2023 IRP modeling.[59] In finding that decision "not unreasonable," the Hearing Examiner, too, cites only to the 2022 RPS Order.[60]

A more careful reading of the 2022 RPS Order, however, does not support the wholesale removal of the dispatch adder. In that case, Commission Staff raised legitimate concerns over Dominion's inclusion of a social cost of carbon adder in *all* modeling submitted in support of its 2022 RPS projects.[61] As Staff noted, the adder covertly inflated the NPV of Dominion's

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58 Virginia Code § 56-585.1 A 6 ("In any application to construct a new generating facility, the utility shall include, and the Commission shall consider, the social cost of carbon, as determined by the Commission, as a benefit or cost, whichever is appropriate.").

59 Hearing Examiner's Report at 156 (citing Joint Issue Matrix at 13).

60 *Id.* at 157 & n.805.

61 *See Petition of Virginia Electric & Power Company for Approval of its 2022 RPS Development Plan etc.*, Case No. PUR-2022-00124, Hearing Examiner's Report at 95 (March 1, 2023), available at https://tinyurl.com/39esnp56.

proposed solar projects by making the dispatch of fossil-fueled alternatives more costly; as the price of fossil dispatch rose, the option to rely instead on solar units became increasingly more valuable.

The problem, of course, is that the social cost of carbon is not a "cost" in the traditional sense. In fact, it is in large part defined in *opposition to* traditional prices. As Dr. Shobe explains, the social cost of carbon is an analytical tool used in the *absence* of an "appropriate[ly] valued price, either from a carbon tax or a carbon market," for the damage caused by emissions.[62] And when a portion of that damage *is* reflected as an actual price, that price should be "subtracted from the social cost of carbon to obtain the net shadow price that would need to be imposed on all CO_2 emissions" in order to reflect their true impact.[63]

Embedding the social cost of carbon into the sole economic analysis supporting a new generation facility is, at best, unhelpful. Even the metric's most ardent supporters recognize that its value is not in predicting future dispatch decisions but in allowing regulators "to account for climate effects and seamlessly compare them in their decision making *against other monetized economic effects*, such as project revenues or monetary costs."[64] Commission Staff was right to interrogate Dominion's use of social cost of carbon in its RPS modeling. Whether the Company's

62 Transcript at 488:17–488:20 (Shobe Surrebuttal).

63 *Id.* at 490:3–490:6 (Shobe Surrebuttal).

64 Richard L. Revesz & Max Sarinsky, *The Social Cost of Greenhouse Gases: Legal, Economic, and Institutional Perspective*, 39 YALE JOURNAL ON REGULATION 856, 873 (2022), available at http://tinyurl.com/yc2vrwyf (emphasis added); *see also id.* at 898–97 ("[E]conomic impacts from reductions in fossil-fuel production and usage, including effects on revenues and jobs, ... should not be included in any calculation of climate damages, but rather considered separately by regulators on the costs side of the ledger in individual determinations.").

proposed solution—removing the social cost of carbon from its modeling altogether—was reasonable is another matter entirely.

The Commission need not revisit that decision, though, as no one here is proposing that Dominion reinstate the flawed methodology it used in the RPS case. Instead, the Club is requesting that the Commission adopt the same middle-ground approach to incorporating the social cost of carbon into resource planning approved by utility regulators in other states. The Club noted in its Post-Hearing Brief that the Colorado Public Utilities Commission has required that the social cost of carbon be modeled in IRP proceedings in light of a state statute that, like Virginia Code § 56-585.1 A 6, allows regulators to consider the social cost of carbon when "consider[ing] utility proposals to acquire resources."[65] In deciding how to implement that requirement in the context of an IRP, the Colorado Commission ordered that the utility model an alternative case that included the social cost of carbon—as opposed to either the "inclusion of [social cost] in the base case," as Dominion did in the RPS proceeding, or the "exclusion of the [cost] altogether in modeling," as Dominion did here.[66] That approach proved so successful that it was later codified in statute by Colorado's General Assembly.[67]

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65 *Application of Public Service Company of Colorado for Approval of its 2016 Electric Resource Plan*, Colorado Public Utilities Commission Proceeding No. 16A-0396E, Phase I Decision Granting Application with Modifications, 2017 WL 1880757, *18 (April 28, 2017).

66 *Application of Public Service Company of Colorado for Approval of its 2016 Electric Resource Plan*, Colorado Public Utilities Commission Proceeding No. 16A-0396E, Decision Addressing Applications for Rehearing, Reargument, or Reconsideration and Approving Contract, 2017 WL 2653047, *4 (June 15, 2017).

67 *See* Colorado Statutes § 40-3.2-106(2)(a) (requiring all electric utility IRPs model at least one "optimization of a base case portfolio of resources using the cost of carbon dioxide emissions," in addition to the base case portfolio).

While regulators in other states have followed suit,[68] the Club recognizes that this Commission has had few occasions to consider the metric and how it fits within Virginia's existing regulatory framework. It may be premature to affirmatively require that future IRPs model a fully optimized plan under an effective shadow price for the social cost of carbon. But by the same token, it would be premature to remove that issue from future consideration solely because Dominion's initial attempts to incorporate the social cost of carbon were less than sound. As such, the Club asks only for a clarification that the 2022 RPS Order did not, by any means, close the book on modeling the social cost of carbon and should not be read to discourage its use in future modeling exercises, as appropriate.

Finding & Recommendation Nos. 34 & 35

The Company's utilization of ICF's REC price forecast in its 2023 IRP was not unreasonable given the nascent and opaque nature of the REC market.

The Commission may find it appropriate to direct Dominion to perform a high and low REC price sensitivity, as suggested / recommended by Staff, in future IRPs.

The Hearing Examiner's approval of Dominion's REC forecast is at odds with her express recognition of the "validity [of] the Sierra Club's concerns regarding a lack of integration in the 2023 IRP resulting from Dominion's use of ICF's REC pricing forecast, which was formulated based on ICF's REC market assumptions, instead of . . . the Company's Virginia renewable energy development assumptions ultimately reflected in the 2023 IRP."[69] While the Club agrees

68 *See, e.g.*, Kayva Balaraman, *Washington Regulatory Staff Pushes to Fine PacifiCorp for Omitting Social Cost of Carbon in Energy Planning*, UTILITY DIVE (June 9, 2022), available at http://tinyurl.com/musn6ax6.

69 Hearing Examiner's Report at 159.

with the Hearing Examiner that Virginia's REC market is both "nascent and opaque,"[70] the parties *also* agree that REC markets generally follow the same principles of efficiency as other sophisticated commodity markets.[71] Even seen through a glass darkly, no efficient market would result in—to take one example—Dominion incurring deficiency payments three-to-four times greater than the going rate of RECs.[72] The "opaque and nascent" nature of the current REC market may make it difficult to understand the ultimate cost of the flaws in Dominion's modeling of REC prices, but it does not make Dominion's disjointed model any more reasonable.

The Club does not oppose incorporating high- and low-band REC price sensitivities into the modeling, as the Hearing Examiner recommends. But that alone will not guarantee internal consistency between modeling inputs and outputs. As such, the Sierra Club stands by Dr. Shobe's recommendation that the Company ensure its own assumptions and outputs are consistent with the assumptions underlying the inputs to its model.[73]

Finding & Recommendation No. 36

Dominion reasonably included in its analysis energy storage options that were commercially and economically available when developing the 2023 IRP.

The Sierra Club agrees that Dominion included in its modeling the energy storage options commercially and economically available at the time it developed its 2023 IRP, four-hour battery

70 Hearing Examiner's Report at 159.

71 Exhibit No. 30 (Shobe Direct) at 19:8–19:10; Transcript at 754:5–754:12 (Scheller Cross).

72 Although Dominion defended this result based on the projected scarcity of Virginia RECs, Company Witness Scheller ultimately agreed that market conditions could result in an increasing number of unbundled RECs entering the marketplace. *See* Transcript at 767:18–768:20 (Scheller Cross).

73 *See* Exhibit No. 30 (Shobe Direct) at 19:15–19:22.

storage.[74] The Club's objection, however, is to the IRP's inconsistent treatment of new and developing technologies. It refused to include long duration energy storage because it has not been deployed at scale, but it had no concerns with including SMRs, which likewise, have not been deployed at scale and are not commercially available.[75] In fact, there are multiple long duration energy storage projects being piloted across the country (including in Virginia) which makes them more "available" than SMRs.[76] Long-duration energy storage should be treated the same as SMRs since neither are commercially or economically available today, and should be allowed to be included as a supply-side resources in future IRPs.

CONCLUSION

For the reasons detailed above, the Sierra Club respectfully requests that the Commission adopt the Hearing Examiner's Report and Recommendation in substantial part, subject to the clarifications requested above.

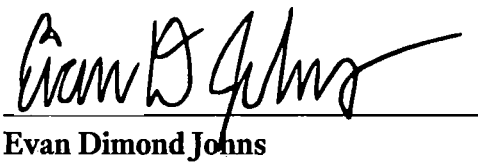
74 Exhibit No. 2 (IRP Report) at 92–93; Exhibit No. 24 (Glick Direct) at 6, 18; Exhibit No. 23 (Roumpani Direct) at 22.

75 Transcript at 368:14–368:24 (Glick Surrebuttal) .

76 *Id.* at 369:1–369:4 (Glick Surrebuttal); Exhibit No. 23 (Roumpani Direct) at 22; Transcript at 806:7–806:21 (Flowers Surrebuttal); *see also generally Application of Virginia Electric & Power Company to Participate in a Pilot Program for Electric Power Storage Batteries Pursuant to Virginia Code § 56-585.1:6 etc.*, Case No. PUR-2023-00162, Application & Request for Waivers (September 18, 2023), available at http://tinyurl.com/3dt58wak.

Dated: December 29, 2023

Respectfully submitted,



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CERTIFICATE OF SERVICE

In accordance with the April 1, 2020 Order Requiring Electronic Service in Case No. CLK-2020-0007, I certify that on December 29, 2023, I sent the foregoing by electronic mail to:

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